

IN THE CLAIMS:

The pending claims are as follows.

1. (Previously Presented) A method of performing a table look-up in a network device comprising the steps of:

receiving a data packet through an input port of the network device;
parsing said data packet into an index portion and a corresponding bucket portion;
indexing, directly, said index portion to said corresponding bucket portion; and
accessing address table information stored in an address look-up table using said bucket portion.

2. (Original) The method as claimed in claim 1 wherein said step of indexing said index portion to said bucket portion is the step of linearly indexing said index portion to said bucket portion.

3. (Original) The method as claimed in claim 1 wherein said step of indexing said index portion to said bucket portion is the step of XOR indexing said index portion to said bucket portion.

4. (Original) The method as claimed in claim 1 further comprising the step of sorting said bucket portion.

5. (Original) The method as claimed in claim 1 further comprising the step of binary sorting said bucket portion.

6. (Previously Presented) The method as claimed in claim 1 wherein the step of parsing said data packet into an index portion and a corresponding bucket portion further comprises the step of parsing said index portion so that said index portion will recur when other data is parsed into said index portion and said corresponding bucket portion.

7. (Previously Presented) The method as claimed in claim 1 further comprising the step of storing information regarding said data in said address look-up table as address table information when no address table information is available using said bucket portion to access address table information.

8. (Previously Presented) An address table look-up indexing device comprising:
a receiver portion of a port of a network device that receives an incoming data packet;
a data parser that parses said data packet into an index portion and a corresponding bucket portion;
an indexer that directly indexes said index portion to said bucket portion; and
an address lookup device that accesses an address look-up table using said corresponding bucket portion.

9. (Original) The device as claimed in claim 8 wherein said indexer linearly indexes said index portion to said bucket portion.

10. (Original) The device as claimed in claim 8 wherein said indexer XOR indexes said index portion to said bucket portion.

11. (Original) The device as claimed in claim 8 further comprising a sorter that sorts said bucket portion.

12. (Original) The device as claimed in claim 11 wherein said sorter binary sorts said bucket portion.

13. (Previously Presented) The device as claimed in claim 11 wherein said data parser parses said index portions into groups such that each said index portion in a group is the same as other index portions in said group.

14. (Previously Presented) The device as claimed in claim 8 further comprising a storage mechanism that stores information regarding said data packet in said address look-up table as address table information when no address table information is available using said bucket portion to access address table information.

15. (Previously Presented) A network switch comprising:
multiple ports used for receiving and exporting data, each of said multiple ports being connected to one another through a communications medium;

multiple Address Resolution Logic (ARL) devices, each of said multiple ARL devices being connected to one of said multiple ports, each of said multiple ports having a corresponding ARL device, each of said multiple ARL devices comprising:

- a parser that parses data into an index portion and a corresponding bucket portion;

- an indexer that directly indexes said index portion to a corresponding bucket portion;

- a look-up device that accesses table entries in a look-up table using said bucket portion.